

WHAT IS CLAIMED IS:

1. A system for efficient distribution of data to a client through a distributed computer network, comprising:
  - a management center connected to the network for determining an optimal delivery route to the client and directing the data along the optimal delivery route; and
  - at least one node connected to the network for relaying the data for delivery to the client.
2. The system of claim 1 wherein the at least one node buffers the data before replicating a plurality of the data for delivery to multiple clients.
3. The system of claim 1 wherein the at least one node buffers the data before replication.
4. The system of claim 1 further comprising at least one content provider, the content provider providing at least one stream of data to the network.
5. The system of claim 1 further comprising at least one zone master for assisting the management center with managing downstream nodes.
6. The system of claim 1 wherein the management center further comprises a mapping engine for mapping trace routes between the management center, at least one node and the client in order to determining the optimal delivery route.

7. The system of claim 1 where in the management center further comprises a content manager for managing registration of content provider details.
8. The system of claim 1 wherein the management center further comprises a node controller for monitoring and informing the at least one node.
9. The system of claim 1 wherein the management center further comprises a log management controller for compiling and processing log statistics received from the at least one node.
10. The system of claim 1 wherein the management center further comprises an interface engine for allowing access to management center databases.
11. The system of claim 1 wherein the data is distributed via channels.
12. The system of claim 11 wherein the data is time-staggered versions of identical content to achieve virtual fast-forward and rewind.
13. The system of claim 11 wherein clients are delivered local content at predetermined or incident-invoked times for a predeffermed duration.
14. The system of claim 1 wherein the data is packet switched telephony data.
15. The system of claim 1 wherein the data is video conferencing data.
16. The system of claim 1 wherein the data is live media content.

17. The system of claim 1 wherein the data is general Internet data.
18. The system of claim 1 wherein the data is on-demand content.
19. A system for distributing a single stream of data from a content provider through a distributed computer network to a plurality of clients within a class IP address range, comprising:
  - a management center connected to the network for determining an optimal delivery route to a first client within the plurality of clients and directing the stream of data along the optimal delivery route;
  - a first optimal node connected to the network for replication of the stream of data for delivery to the first client; and
  - a second optimal node connected to the network for replication of the stream of data for delivery to a second client.
20. The system of claim 19 wherein the first and second optimal nodes are the same.
21. The system of claim 19 wherein the first and second optimal nodes replicate a plurality of the stream of data for delivery to the plurality of clients.
22. A method for distribution of data to a client through a computer network, comprising the steps of:
  - determining an optimal delivery route from a content provider to a client;
  - transmitting a data stream from the content provider through the network;
  - receiving the data at an optimal node to the client; and

- relaying the data for delivery to the client.
23. The method of claim 22 further comprising the step of transmitting the data through a path of a plurality of nodes before reaching the optimal node.
24. The method of claim 23 wherein a management center determines the path.
25. The method of claim 22 further comprising the step of substituting content local to the optimal node into the data stream.
26. A method for distribution of a single stream of data to a plurality of clients within a class IP address range, comprising the steps of:  
      determining an optimal delivery route from a content provider to a first client within the plurality of clients;  
      receiving the stream of data at a first optimal node to the first client and duplicating the stream of data for delivery to the first client;  
      determining an optimal delivery route to a second client within the plurality of clients; and  
      receiving the stream of data at a second optimal node to the second client and duplicating the stream data for delivery to the second client.
27. The method of claim 26 wherein the first and second optimal nodes are the same.
28. A method for determining an optimal delivery route from a content provider to a client within a network, comprising the steps of:  
      obtaining a trace route from a management center to the client;  
      determining most efficient network links from nodes within the network to the client; and

selecting the most efficient network link as the optimal delivery route.

29. The method of claim 28 wherein the step of selecting further comprises performing trace route mappings between the node of the most efficient network link and the client to determine the optimal delivery route.
30. The method of claim 28 wherein the step of determining further comprises performing trace route mappings between the management center and the nodes.
31. The method of claim 28 wherein the step of determining further comprises accessing a database in the management center containing trace route data for the nodes.
32. The method of claim 28 wherein the step of determining further comprises accessing a location compiled table for node location data within a zone.
33. The method of claim 28 wherein the step of determining further comprises accessing a best performing node index unique router address table.

34. A system for distributing a single stream of data from a content provider to a plurality of clients through a distributed computer network, comprising:

means for determining an optimal delivery route from the content provider to a first client within the plurality of clients;

means for receiving the stream of data at a first optimal node to the first client and duplicating the stream of data for delivery to the first client;

means for determining an optimal delivery route to a second client; and

means for receiving the stream of data at a second optimal node to the second client and duplicating the stream of data for delivery to the second client.

35. The system of claim 34 wherein the first and second optimal nodes are the same.

36. A computer readable medium having embodied thereon a program, the program being executable by a machine to perform the method step for determining an optimal delivery route from a content provider to a client within a network, the method steps comprising:

obtaining a trace route from a management center to the client;  
determining most efficient network links from the nodes within the network to the client; and

selecting the most efficient network link as the optimal delivery route.

37. The computer readable medium of claim 36 wherein the step of selecting further comprises performing trace route mappings between the nodes of the most efficient network links and the client to determine the optimal delivery route.

38. A method for determining an optimal delivery route from a first computing device to a second computing device within a network, comprising the steps of:
  - obtaining a trace route from a management center to the first and second computing devices;
  - determining most efficient network links from nodes within the network to the first and second computing devices; and
  - performing trace route mappings between nodes of the most efficient network links and the first and second computing devices.
39. A system for efficient distribution of data to a client through a distributed computer network, comprising:
  - a management center connected to the network for determining an optimal delivery route to the client and directing the data along the optimal delivery route; and
  - at least one router device connected to the network for replication of the data for delivery to the client,
    - wherein the optimal delivery route is determined by performing mappings to and from the at least one router device and the management center.
40. A method for streaming media error recovery in an intelligent distribution network due to node failure, comprising the steps of:
  - detecting a failed node location;
  - determining an alternative source node at a next node downstream of the failed node location; and
  - obtaining streaming media from the alternative source node.

41. The method of claim 40 wherein the step of detecting further comprises polling by downstream nodes of their subsequent upstream node until the failed node location is discovered.
42. The method of claim 40 wherein the step of determining further comprises accessing a listing of best surrounding nodes from data contained in node configuration files of the next node downstream of the failed node location.
43. The method of claim 40 further comprising the step of substituting local content in place of the streaming media until completion of error recovery.
44. A system for generating Internet network performance maps, comprising:
  - at least one management center connected to the Internet for mapping trace routes; and
  - a plurality of nodes connected to the Internet, the plurality of nodes reporting Internet network performance to the at least one management center.
45. The system of claim 44 further comprising a neural network coupled to the at least one management center for learning the Internet architecture.
46. The system of claim 1 wherein the management center downgrades lower priority clients from a higher quality of service network link to a less optimal network link when a higher priority client requests use of the higher quality of service network link.

47. The system of claim 1 wherein the at least one node is used to buffer and resynchronize multiple streams of content.